

REMARKS

Claims 5-23 are pending in this application. Applicant has cancelled claims 1-4, which were withdrawn from consideration, without prejudice. Claims 5-23 stand rejected. Applicant has amended claims 13 and 14. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

DRAWINGS

The drawings are objected to in connection with the recitations of claim 13. Claim 13 is amended as further described below. Applicant respectfully requests, in view of the amendment to claim 13, that the objection to the drawings be withdrawn.

REJECTION UNDER 35 U.S.C. § 112

Claim 13 (and claim 14 dependent thereon) stands rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. This rejection is respectfully traversed. Claim 13 is amended to recite a “workspace” and “at least one other space”. Claim 14 is amended for consistency with claim 13. The amended claims are supported in the specification. For example, in Fig. 4 is shown a workspace 314, a storage compartment 316 and a laser compartment 318 (specification, paragraph 32). A window 334 is included in the interior wall 312 (specification, paragraph 34). Applicant therefore respectfully requests that the rejection under 35 U.S.C. § 112, first paragraph be withdrawn.

REJECTION UNDER 35 U.S.C. § 102

It is stated in the Office Action that claims 4, 6-7, 9 and 11-22 are rejected under 35 U.S.C. §102 (a) as being anticipated by Hoadley, U.S. Patent No. 4,089,608. Claim 4, however, has been cancelled, and claim 5 is not mentioned in the Office Action. Therefore Applicant assumes that claims 5-7, 9 and 11-22 stand rejected under 35 U.S.C. §102 (a). Applicant respectfully requests reconsideration of the foregoing rejection.

Claim 5 (and claims 6 - 8 which depend therefrom) requires “a reflector on at least a portion of the side wall” and “at least one laser source for projecting a fan-

shaped beam across the horizontal work surface to the reflector” (emphasis added).

The laser source 43 of Hoadley projects toward a prism 45, which reflects light toward a prism 50 (FIG. 1). The prism 45 does not project light across a horizontal surface.

Although the prism 50 reflects light toward a model 16, the prism 50 does not reflect light to a reflector on a sidewall.

Hoadley also discloses an arc lamp 115 that directs light to a concave mirror 122. The mirror 122 reflects the light as parallel rays toward a model 16 (col. 6, lines 57-69; FIG. 9). Hoadley does not disclose “projecting a fan-shaped beam across the horizontal work surface”, as recited in claim 5.

With respect to claim 9 (and claims 10-12 depending therefrom), these claims require “means for generating a plurality of planes of laser light across the generally horizontal work surface which illuminate contour lines on a model on the work surface” (emphasis added). Hoadley does not disclose means for generating a plurality of planes of laser light. Hoadley discloses a single laser beam 57 of light that is used to define points of a model surface that are common with a scan plane (col. 4, lines 12-16). A single laser source 43 is rotated about the model. Instead of rotating a laser light beam about a model, an intense, fixed thin plane or sheet of light may be provided, as shown in FIG. 9. Where two vertically aligned sheets of light are provided, they form a continuous light plane 123 (col. 6, lines 48-70; col.7, lines 1-6). In contrast, claim 9 recites a plurality of planes of laser light across the generally horizontal work surface.

With respect to amended claim 13 (and claim 14 depending therefrom), the claim requires “at least one interior wall inside the sidewalls defining a workspace and at least one other space” and “at least one window in the interior wall” and “at least one laser source in one of the at least one other space of the apparatus adapted to project a generally fan-shaped laser beam through the at least one window in the interior wall and across the workspace.” This construction is not shown or suggested in Hoadley.

With respect to claim 15 (and claims 16-18 which depend therefrom), claim 15 requires “projecting a plurality of planes of light in spaced relation over the surface of a support to illuminate contour lines on objects on the surface that break the planes of light”. This is not shown in Hoadley, as discussed above with reference to claim 9.

Similarly, claim 19 requires “projecting a plurality of planes of laser light horizontally across the work surface, and different levels to illuminate contour lines on the model where the planes impinge the model.” As discussed above with respect to claim 15, this is not shown or suggested in Hoadley.

With respect to claim 20 (and claims 21-23 dependent thereon), the claim recites “a reflector on at least a portion of the side wall” and “at least one laser source for projecting a fan-shaped beam across the horizontal work surface to the reflector” (emphasis added). As previously discussed with reference to claim 5, the laser source 43 of Hoadley projects toward a prism 45, which reflects light toward a prism 50 (FIG. 1). The prism 45 does not project light across a horizontal surface. Although the prism 50 reflects light toward a model 16, the prism 50 does not reflect light to a reflector on a sidewall. Hoadley also discloses an arc lamp 115 that directs light to a concave mirror 122. The mirror 122 reflects the light as parallel rays toward a model 16 (col. 6, lines 57-69; FIG. 9). Hoadley does not disclose “projecting a fan-shaped beam across the horizontal work surface”, as recited in claim 20.

REJECTION UNDER 35 U.S.C. § 103

Claims 8, 10 and 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Pipitone et al., U.S. Pat. No. 5,838,428. This rejection is respectfully traversed. Pipitone et al. describe an imaging system in which light is projected through a mask 22 having alternate opaque and transparent stripes (FIG. 1, col. 3, lines 60-65). A specific amount of blur created by the shadow of the mask is desired. With blur, a pattern 4 on an object 2 is not a set of sharp black and white stripes; instead, it contains grey scales (col. 4, lines 35-55). A blurred pattern for use in high-resolution imaging would not be useful or desirable in the apparatus of Hoadley to provide a contour line.


For at least these reasons, Applicant respectfully submits that the invention set forth in claims 8, 10 and 23 would not have been obvious over Hoadley in view of Pipitone et al., and that the rejection of these claims should be withdrawn.

CONCLUSION

Applicant respectfully submits that upon entry of the above amendments, and consideration of the above remarks that claims 5-23, being all of the claims pending in the application, will be found to be in condition for allowance. If it would advance the prosecution of this application, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

Dated: July 7, 2004

By: 
Elizabeth D. Odell
Reg. No. 39,532

HARNESS, DICKEY & PIERCE, P.L.C.
7700 Bonhomme, Suite 400
St. Louis, Missouri 63105
(314) 726-7500